

numbers of months; each month some households are dropped from the sample and others are added. Some households remain in the sample for the entire 22-month period, others for shorter periods of time, and some households are in the sample for only a single month.

36. To analyze household choices of long distance carrier, we first determined each household's "main vendor" for direct dialed domestic interLATA calls in each month. A household's main vendor is defined as the carrier the household uses to carry the largest number of minutes of interLATA direct dialed domestic calling in that month. A household's main vendor is not necessarily its presubscribed carrier because households can use dial around services for the majority of their calls, and some households do just that. Many emerging carriers have chosen to market a dial around service. Using the main vendor measure, rather than only a household's Primary Interexchange Carrier (PIC) choice, gives an emerging carrier credit for attracting a customer even if the customer continues to presubscribe to AT&T, MCI WorldCom, or Sprint.³⁷

37. Analyses of the choices of main vendor by households in the Paragren sample show the following:

- Nearly one-half of all households that use MCI WorldCom or Sprint as their main vendor at any point in time shift to another carrier as their main vendor within 12 months.

³⁷ Relying only on households' PIC choice also has a second limitation. Paragren does not identify directly the PIC choice for all households in the dataset. In particular, the PIC designation is indicated for only a small proportion of households prior to September or October of 1998. Using the PIC designation to track customer choice of carrier therefore limits the period over which relatively full samples of data are available unless one attempts to infer PIC choice from usage information.

- More than one-third of households used an emerging carrier as their main vendor for at least one month during a 12-month period, and nearly 40 percent did so over an 18-month period.
- About one-third of households who switched from MCI WorldCom or Sprint dial-1 service as their main vendor switched to an emerging carrier, substantially more than would be predicted based on current shares of residential subscribers.

THE EXTENT OF CUSTOMER SWITCHING AND BRAND LOYALTY

38. We first analyzed the Paragren data to determine how many of the customers a carrier has in any one month switch to other carriers in succeeding months. This analysis shows that MCI WorldCom, Sprint, and AT&T all experience high rates of turnover. Not only is the proportion of customers that leave in any single month relatively high, but a relatively large proportion of those who use a carrier as main vendor at any point in time will shift to using another carrier as main vendor over the next 12 to 18 months. High monthly churn is not simply the result of a small proportion of customers shifting carriers while most customers remain loyal. Indeed, these results show that a large proportion of households demonstrate a lack of brand loyalty, in the sense that they are willing to change the carrier they use as main vendor.

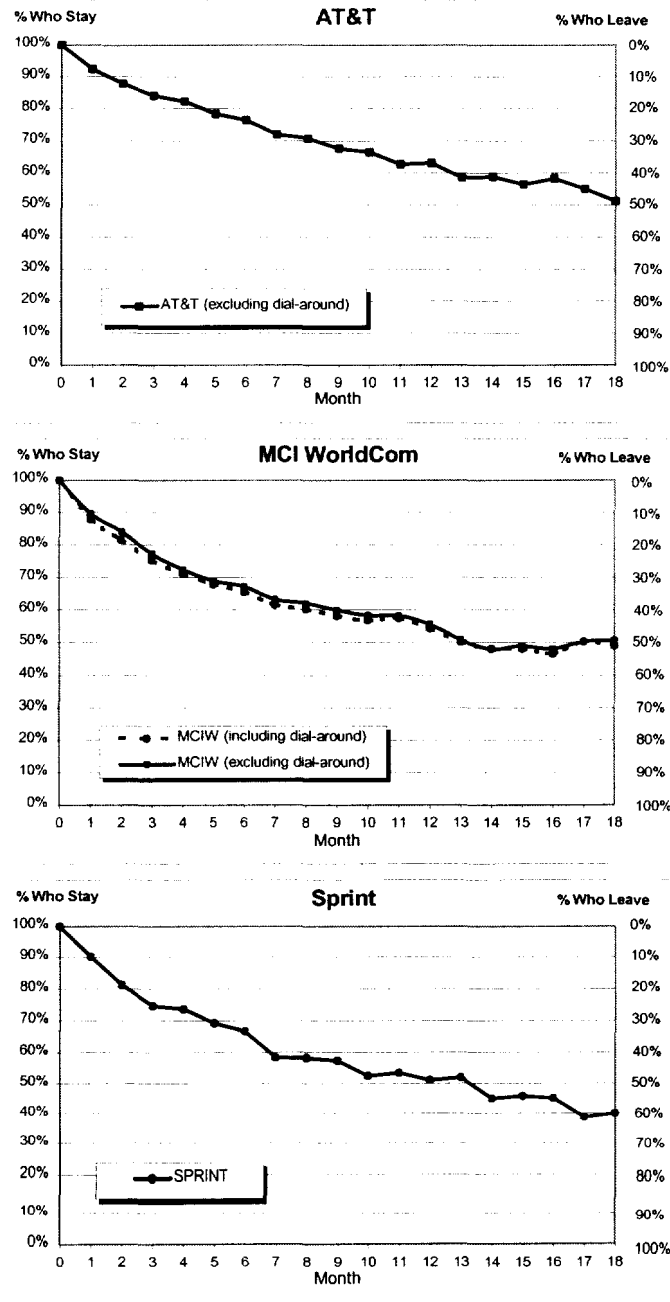
39. For this analysis, we first determined each household's main vendor for direct dialed domestic interLATA calls in the first month the household is in the Paragren

sample. Next, we determined if and when the household switched from its original choice of main vendor. Figure 1 plots the results of this analysis. The three panels show what proportions of the households that initially chose AT&T, MCI WorldCom, or Sprint as their main vendor for direct dialed domestic interLATA calling continued to use that carrier in succeeding months without switching to another carrier as their main vendor.³⁸

³⁸ The reported results may understate the rate of erosion because the percentage of households that had not switched to another carrier within n months was calculated for the sample of households for which there were observations in the n th month after their first appearance in the data. Since some households drop out of the sample and reappear, some of these households may have used another carrier as their main vendor in an intervening month for which there are no data. In a few cases, the plots in Figure 1 show small increases from one month to the next in the proportion of customers who continue to use a carrier as main vendor. This would not be possible if data for the same households were in the sample for all months. In fact, the sample of households changes and gets smaller as the number of months increases, since not all households remain in the sample for the same number of months.

Figure 1

**Proportion of Households Initially Choosing a Carrier as Main Vendor
that Continue to Use that Carrier as Main Vendor**



Note: "Main Vendor" defined as the carrier carrying the most minutes of direct-dial domestic InterLATA calling in a particular month.

Source: Paragren Tele-Trend Data for January 1998 through October 1999.

40. The results confirm that, for all major carriers, substantial proportions of the customers they have at any given time will leave to use other carriers in succeeding months. For example, 44 percent of the sampled households that initially used MCI WorldCom dial-1 service as their main vendor switched to another carrier as their main vendor within 12 months, and 49 percent switched to another carrier as their main vendor within 18 months.³⁹ About 49 percent of the households that initially chose Sprint as their main vendor had switched to another carrier as their main vendor within 12 months, and 60 percent of these households had stopped using Sprint as their main vendor within 18 months. AT&T's customer base erodes somewhat less rapidly, but 37 percent of the households that initially chose AT&T as their main vendor had left AT&T within 12 months, and nearly 49 percent had left within 18 months.⁴⁰

41. These results confirm that AT&T, MCI WorldCom, and Sprint all experience substantial turnover of their residential customer bases. Moreover, high monthly churn rates do not result simply from a high rate of turnover by a small proportion of households. Instead, competition from other carriers attracts a large proportion of customers of the major carriers, and these carriers must then compete to attract other customers, or win back the customers they have lost, in order to maintain or increase their market share.⁴¹

³⁹ If use of MCI WorldCom's dial around service is counted toward use of MCI WorldCom as main vendor, the results are that within 12 months 46 percent of customers that initially chose MCI WorldCom as their main vendor had switched to using another carrier as main vendor, and within 18 months 51 percent had switched to use of another carrier. These results also are plotted in Figure 1.

⁴⁰ The reported figures do not count use of AT&T's Lucky Dog dial around service toward use of AT&T as main vendor. Counting Lucky Dog as an AT&T service results in very little change in the plotted and reported results.

⁴¹ Reported results, which focus on the turnover of households, if anything tend to understate the number of minutes of traffic that customer turnover put at risk of loss for the carriers. For all three carriers, the average

42. Surveys of residential consumers indicate that they change carriers most often to reduce what they pay for long distance service. A recent survey by PNR and Associates asked residential consumers who had switched long distance companies their reasons for switching.⁴² The two reasons respondents gave most often for switching (and multiple reasons could be offered) were that the new provider was cheaper (63 percent of respondents) and that they received inducements to switch such as a discount or gift (47 percent of respondents).⁴³ A 1999 J. D. Power survey found similar patterns.⁴⁴ Consumers who indicated they were likely to switch their primary long distance carrier in the next 12 months were asked to identify the top three reasons that might induce them to switch.⁴⁵ The reasons for changing carriers identified by the most respondents were: new carrier offers lower price/cost for long distance calls (66 percent), special subscriptions or

monthly minutes of use for customers who leave tend to be at least as great as the average monthly minutes of use for households that do not switch to another carrier as their main vendor.

⁴² PNR and Associates, "ReQuest V Survey," Version 5.10, March, 1999. Reported responses are to Question 26. According to PNR, the survey was fielded in September 1998. Responses to Question 26 were tabulated for 7,119 respondents who indicated they had switched long distance carriers in the past. Respondents were given a list of possible reasons for switching carriers and asked to mark all that were among their reasons for switching. The twelve reasons listed were: billing problems, deceptive pricing, inferior service staff, service problems, new provider reputation, new service more reliable, old provider increased price, inducement (gift, discount, etc.), bad response to service failure, old provider not competitive, new provider cheaper, and old provider unethical.

⁴³ The third and fifth most frequently given reasons also involved pricing: deceptive pricing by original carrier (26 percent), and old provider increased price (13 percent). The fourth most frequently given reason was billing problems (18 percent). All other reasons, including that of new provider reputation, were listed by less than 13 percent of respondents.

⁴⁴ J. D. Power and Associates, *1999 Syndicated Residential Wireline Satisfaction Study, 5th Annual Benchmark Wave: Long Distance Telephone Service Management Report*, July 1999. Reported responses are to Question 26.

⁴⁵ Respondents were asked to mark their top three reasons from the following list: reliability of new carrier, new carrier has the ability to provide all my communications needs (e.g., cellular, paging, Internet, cable, etc.), new carrier provides one bill for all my communications services (e.g., cellular, paging, Internet, cable, etc.), price structure or payment plan options offered by new carrier, features or services offered by new carrier, special subscriptions or promotions offered by new carrier (e.g., free minutes, cash incentive), new carrier offers lower price/cost for long distance calls, already use local service, and unhappy with current carrier and/or wanted to try someone different.

promotions offered by new carrier (48 percent), and price structure or payment plan options offered by new carrier (47 percent). No other reason was listed by more than 25 percent of respondents.

43. The data on customer switching do not support claims that either generalized customer inertia or brand loyalty restricts competition for residential customers and would allow a merged MCI WorldCom-Sprint to raise prices without losing market share. To the contrary, these results indicate that, within a 12 to 18 month period, a large proportion of those households that start out as MCI WorldCom, Sprint, or AT&T customers actually switch to another carrier as their main vendor and, undoubtedly, an even larger proportion consider doing so. These results also contradict the claim that most customers are so loyal to these brands that they are deterred from switching carriers and that, therefore, competition is inhibited.

WILLINGNESS TO USE EMERGING CARRIERS

44. The Paragren data on residential consumer usage of various carriers also show that many consumers in fact are willing to use carriers that do not exhibit the AT&T, MCI WorldCom, or Sprint brand name. All carriers, including emerging carriers, are constantly both winning and losing customers, but the emerging carriers do not simply trade customers with each other. Many residential consumers shift between an AT&T, MCI WorldCom, or Sprint branded service and a service offered by an emerging carrier. One indication of this fact is that the proportion of households that have used emerging carriers at some time substantially exceeds the proportion that is using them at any given time.

Table 2
Percentage of Households Using an Emerging Carrier
or a Service without an AT&T, MCI WorldCom, or Sprint
Brand Name for Some Direct-Dialed Domestic
InterLATA Calling

Number of Months in Sample	Percentage Using Service of an Emerging Carrier	Percentage Using Service without an AT&T, MCIW, or Sprint Brand
1	22.8%	25.6%
2	27.1%	30.6%
3	29.8%	33.7%
4	31.7%	35.8%
5	33.9%	38.2%
6	36.0%	40.2%
7	37.3%	41.6%
8	39.3%	43.8%
9	41.0%	45.4%
10	42.0%	46.6%
11	42.6%	47.3%
12	43.7%	48.8%
13	45.1%	50.2%
14	46.1%	50.4%
15	45.8%	51.0%
16	46.4%	50.7%
17	47.6%	52.8%
18	47.0%	53.3%

Source: Paragren Tele-Trend Data for January 1998 through October 1999.

45. Table 2 reports the proportion of households that used a carrier other than AT&T, MCI WorldCom, or Sprint for at least some interLATA direct dialed domestic calling, if not necessarily as their main vendor, over various numbers of months. The percentage of households that used an emerging carrier generally rises with the number of months that households are in the sample. Table 2 also reports the percentage of households that used a service that did not carry the AT&T, MCI WorldCom, or Sprint brand name for at least some interLATA calling. This latter measure includes households' use of the MCI WorldCom and AT&T dial around services that do not carry the MCI WorldCom or

AT&T brand names. Opponents argue that households are reluctant to use long distance service from emerging carriers because they do not carry the established brand names of AT&T, MCI WorldCom, or Sprint. If that were true, households should be similarly reluctant to use the dial around services of MCI WorldCom and AT&T since these are not marketed under the corporate brand names and most consumers are presumably unaware of the parent carrier's identity.

46. Table 2 indicates that, even over relatively short periods of time, a substantial proportion of households demonstrate a willingness to use a carrier other than AT&T, MCI WorldCom, or Sprint, or to use a service that does not carry the AT&T, MCI WorldCom, or Sprint brand name, for at least some domestic direct dialed interLATA calling.⁴⁶ About 44 percent of households in the sample for 12 months used an emerging carrier within that time, and 47 percent of households in the sample for 18 months used an emerging carrier within that time. About 49 percent of households in the sample for 12 months used a service that did not carry the AT&T, MCI WorldCom, or Sprint brand in that period, and 53 percent of households in the sample for 18 months used a service that did not carry the AT&T, MCI WorldCom, or Sprint brand.

⁴⁶ Decreases in the proportion of households using emerging carriers as the number of months households are in the sample increases are a result of variation due to sampling.

Table 3
Percentage of Households Using as
Main Vendor an Emerging Carrier or a Service
Without an AT&T, MCI WorldCom, or Sprint Brand Name

Number of Months in Sample	Percentage Using Service of an Emerging Carrier	Percentage Using Service without an AT&T, MCIW, or Sprint Brand
1	20.4%	22.6%
2	23.8%	26.4%
3	26.0%	28.9%
4	27.4%	30.6%
5	28.9%	32.4%
6	30.7%	34.1%
7	31.5%	34.6%
8	33.0%	36.5%
9	34.7%	38.5%
10	35.1%	38.9%
11	35.7%	39.6%
12	36.2%	40.5%
13	37.1%	41.3%
14	37.8%	41.9%
15	37.4%	42.4%
16	37.8%	42.3%
17	38.2%	43.3%
18	38.5%	44.7%

Source: Paragren Tele-Trend Data for January 1998 through October 1999.

47. We also examined the willingness of households to use a carrier other than AT&T, MCI WorldCom, or Sprint—or a service not carrying the AT&T, MCI WorldCom, or Sprint brand name—as their main vendor for domestic direct dialed interLATA calling for at least one month in which they were in the sample. Table 3 reports the results of this analysis. Again, the data indicate that a substantial proportion of households are willing to employ as their main interLATA vendor an emerging carrier, or a service not branded by AT&T, MCI WorldCom, or Sprint. About 36 percent of households in the sample for 12 months used an emerging carrier as their main vendor for one month within that time, and

about 38 percent of households in the sample for 18 months used an emerging carrier as their main vendor within that time. About 40 percent of households in the sample for 12 months used as their main vendor within that period a service that did not carry the AT&T, MCI WorldCom, or Sprint brand, and 45 percent of households in the sample for 18 months at least once used as their main vendor a service that did not carry the AT&T, MCI WorldCom, or Sprint brand.

48. These results contradict the claim of opponents that relatively few customers of AT&T, MCI WorldCom, and Sprint would be willing to use a long distance service that does not bear an AT&T, MCI WorldCom, or Sprint brand name. Rather, the data indicate that many households have demonstrated their willingness to use an emerging carrier or an “unbranded” service. This suggests that emerging carriers could increase their market share very substantially in response to an increase in the price of so called “branded services” simply by attracting households with a demonstrated willingness to use emerging carriers or “unbranded” services.

SWITCHING FROM AT&T, MCI WORLDCOM, OR SPRINT TO EMERGING CARRIERS

49. The Paragren data also show that many residential customers have demonstrated a willingness to switch from using an AT&T, MCI WorldCom, or Sprint service to a service of an emerging carrier or to a service that does not carry an AT&T, MCI WorldCom, or Sprint brand name. Paragren data were used to determine how many of the residential households that stopped using AT&T, MCI WorldCom, or Sprint as their main vendor switched to using an emerging carrier.

50. Table 4 reports the results. About 46 percent of residential households that stopped using AT&T dial-1 service as their main vendor switched to an emerging carrier, 36 percent of departing MCI WorldCom dial-1 customers switched to an emerging carrier as their main vendor, and 31 percent of departing Sprint customers switched to an emerging carrier as their main vendor. In each case, the proportion of customers switching to an emerging carrier is substantially greater than would be predicted based on the market share of emerging carriers as a group.

Table 4

**Percentage of Households that Stop Using an
AT&T, MCI WorldCom, or Sprint Branded Service as
Main Vendor, and Switch to an Emerging Carrier or to a
Service without an AT&T, MCI WorldCom, or Sprint Brand**

Initial Main Vendor	Percentage of Households that Switch to:	
	Emerging Carrier	Service without AT&T, MCIW, or Sprint Brand
AT&T	45.7%	60.3%
MCIW	35.9%	42.1%
Sprint	31.0%	39.3%

Source: Paragren Tele-Trend Data for January 1998 through October 1999.

51. Table 4 also reports what proportion of the households that stopped using an AT&T, MCI WorldCom, or Sprint *branded* service as their main vendor switched to using either an emerging carrier or the dial around services of MCI WorldCom and AT&T (which do not carry their corporate brand name). About 60 percent of residential households that stopped using AT&T's branded service as their main vendor switched either to an emerging carrier or to the AT&T or MCI WorldCom dial around service, 42

percent of customers departing from MCI WorldCom's branded service switched to an emerging carrier or to the "unbranded" AT&T or MCI WorldCom dial around services, and 39 percent of departing Sprint customers shifted to one of these services.

52. We next looked in more detail at the main vendors chosen by households when they stopped using MCI WorldCom or Sprint as their main vendor. The analysis identified all instances from January 1998 through October 1999 in which a household in the Paragren sample for successive months stopped using an MCI WorldCom or Sprint branded dial-1 service as their main vendor, and then determined how many of these households chose as main vendor in the next month the dial-1 service of the other, how many chose the dial-1 service of AT&T, and how many the service of an emerging carrier. Table 5 reports the ratio of the number of households shifting to each of these alternatives relative to the number that would be predicted if households shifted in proportion to "market" shares.

Table 5
Ratio of Actual to Predicted Number of Customers
Switching Main Vendor for Domestic Direct-Dialed
InterLATA Calling: January 1998-October 1999

Former Main Vendor	New Main Vendor			
	AT&T Dial-1 Service	MCI WorldCom Dial-1 Service	Sprint Dial-1 Service	Emerging Carrier
MCI WorldCom Dial-1 Service	0.79	--	0.90	1.44
Sprint Dial-1 Service	0.71	1.00	--	1.45

Note: Number of customers predicted to shift to a carrier is based on the share of households using that carrier as main vendor in the initial month.

Source: Paragren Tele-Trend Data, January 1998 through October 1999.

53. These data indicate that households did not shift from MCI WorldCom or Sprint dial-1 service to the other in disproportionately large numbers; households shifted from MCI WorldCom dial-1 service to Sprint dial-1 service in numbers somewhat below what would be predicted by their shares, and from Sprint to MCI WorldCom just as frequently as would be predicted by their shares. On the other hand, households shifted to emerging carriers in substantially larger numbers than would be predicted by shares, but shifted to AT&T in smaller numbers than would be predicted by shares. Indeed, more than four times as many households shifted their choice of main vendor from MCI WorldCom to an emerging carrier as shifted their choice from MCI WorldCom to Sprint, and about 40 percent more households shifted their choice of main vendor from Sprint to an emerging carrier as shifted from Sprint to MCI WorldCom dial-1 service.

54. Drs. Carlton and Sider also present results derived from Paragren data on the carriers to which customers shift when they leave MCI WorldCom or Sprint. They, however, use a customer's PIC choice as the indicator of the carrier used by a household and examine 12 months of data on household choices, from October 1998 through September 1999, rather than 22 months of data from January 1998 through October 1999 as we do.⁴⁷ Carlton and Sider conclude that their results, which show customers shifting from Sprint to MCI WorldCom and from MCI WorldCom to Sprint in numbers greater than would be expected based on market shares, generally support the proposition that residential customers view MCI WorldCom and Sprint as closer substitutes than either is to AT&T.⁴⁸ It is hard to be confident, however, of inferences about patterns of cross

⁴⁷ Carlton and Sider Declaration, ¶37. We have not been able to replicate the results that Carlton and Sider report.

⁴⁸ Carlton and Sider Declaration, ¶¶37-38.

elasticities from information on the numbers of customers that shift from one carrier to another without taking into account information about the prices to which customers are responding when they switch. Cross elasticities measure the responsiveness of customer demand for one service to changes in the prices of other services. Customers may shift in disproportionately large numbers from one carrier to another, not because those services are especially close substitutes, but because of an especially large change in relative prices.

55. Even if one is willing to infer something about closeness of substitutes and cross elasticities from customer switching patterns alone, the results we report in Table 5—which focus on the carriers that customers actually use for calling, rather than on their PIC designations, and examine choices over a longer sample period—reveal quite different patterns. Our results do not indicate that households shift between MCI WorldCom and Sprint dial-1 services in disproportionately large numbers. Our results do show that households shifted from both the MCI WorldCom and Sprint services to AT&T in smaller numbers than would be predicted by their shares, but also show that households shifted to emerging carriers in much larger numbers than would be predicted. To the extent such patterns indicate closeness of substitutes, our results suggest that the services of the emerging carriers are closer substitutes for both the MCI WorldCom and Sprint branded services than the MCI WorldCom and Sprint services are for each other. In any case, these switching patterns fail to support opponents' claims that consumers would be particularly reluctant to switch from MCI WorldCom and Sprint services with a "brand name" to services provided by emerging carriers that are said to lack well-known brand names.

C. Other Claims About the Importance of Branding

56. Opponents of the merger also argue that both the level of advertising engaged in by AT&T, MCI WorldCom, and Sprint, and also past ILEC and predicted future RBOC success in winning long distance business indicate the importance of brand name as prerequisite for success. In this section, we address these issues.

ADVERTISING

57. Several commenters argue that the large advertising expenditures by AT&T, MCI WorldCom, and Sprint show that their established brand names would make it difficult for emerging carriers to compete effectively for mass market customers.⁴⁹ As evidence, the commenters provide estimates of the aggregate national advertising expenditures in 1998 by AT&T, MCI WorldCom, and Sprint. Professor Hausman claims that these advertising expenditures are designed to differentiate long distance products and to build brand loyalty.⁵⁰

58. Leaving aside the question of the companies' intent in advertising, the data presented above cast serious doubt on whether advertising campaigns have succeeded in instilling sufficient brand loyalty to inhibit customers from moving between carriers, or from using services from emerging carriers. More generally, one ought not to assume that advertising of long distance service enhances perceived product differentiation. While economists have argued that advertising *may* increase differentiation, economists also recognize that advertising may *reduce* differentiation by increasing the information that

⁴⁹ See Carlton and Sider Declaration, ¶¶ 16-17; also Opposition of SBC, p. 14.

⁵⁰ Hausman Declaration, ¶19.

consumers have about the existence and pricing of services that are available.⁵¹ Much of the copy for recent mass media advertising of AT&T, MCI WorldCom, and Sprint long distance service is devoted to providing information on the firms' pricing. Such messages provide little evidence for the conclusion that this advertising is designed to increase differentiation and brand loyalty. Rather, these advertisements apparently seek to encourage consumers to base their choice of service on price and to encourage customers of other carriers to leave for a better price.

59. Opponents of the proposed merger acknowledge that not all of the advertising by AT&T, MCI WorldCom, and Sprint is directed at mass market long distance services, but they present no more detailed information on the nature of the advertising by these companies.⁵² More disaggregated estimates from Competitrack on the television and print advertising expenditures of the three companies demonstrate that very substantial portions of their advertising expenditures were for products other than traditional, mass market wireline long distance service, and much of the expenditures were for services that do not even carry the corporate brand.⁵³

60. AT&T and Sprint both spend a large portion of their advertising budgets on wireless services. According to Competitrack estimates, in 1998 Sprint spent about 42 percent of its television and print advertising budget on wireless service, and, in the first 11

⁵¹ See, for example, Jean Tirole, *The Theory of Industrial Organization* (Cambridge, MA: MIT Press, 1988), pp. 289-290.

⁵² Drs. Carlton and Sider (fn. 10, p. 9) say that "unfortunately" data are not available to identify each company's specific spending on the advertising of long distance service. Dr. Hausman (fn. 13, p. 10) says that not all advertising is for mass market long distance, but maintains that other advertising also increases brand awareness.

⁵³ Competitrack, Inc., "Data for Regional Telecommunications," December 1997 through November 1999. All results reported below in this section are calculated from this source.

months of 1999, wireless services accounted for 58 percent of its advertising. AT&T, according to these data, spent about 26 percent of the firm's advertising expenditures in 1998 and 38 percent of its expenditures through the first 11 months of 1999 on wireless services.

61. Even more strikingly, MCI WorldCom, and to a somewhat lesser extent AT&T, devoted large portions of their advertising budgets in 1998 and 1999 to services that do not carry the corporate brand name. According to Competitrack data, 36 percent of MCI WorldCom's total advertising expenditures in 1998 and fully 51 percent of MCI WorldCom's total advertising expenditures through the first 11 months of 1999 was for its dial around services. Indeed, MCI WorldCom spent considerably more to advertise these dial around products that are not MCI branded than it did to advertise MCI branded residential wireline services. Advertising of non-MCI branded dial around services constituted about 64 percent of MCI WorldCom's total advertising expenditures on residential wireline long distance service in 1998, and 76 percent of MCI WorldCom's spending on residential wireline long distance service through the first 11 months of 1999.

62. AT&T also devoted a substantial portion of its advertising budget to a dial around service that does not carry its corporate brand name. According to Competitrack's data, AT&T spent more than twice as much advertising its Lucky Dog dial around service through the first 11 months of 1999 as it had in all of 1998. In 1998, AT&T's advertising expenditures on this non-AT&T branded dial around service constituted about 19 percent of the firm's advertising on residential wireline long distance service; through the first 11

months of 1999, AT&T's advertising of this service grew to about 44 percent of all of its advertising expenditures on residential wireline services.⁵⁴

63. MCI WorldCom and AT&T advertising expenditures on these dial around products, while part of their corporate advertising expenditures, clearly do not reinforce the MCI WorldCom or AT&T brand names. A consumer seeing this advertising is not even told that the products are supplied by MCI WorldCom or AT&T. If anything, expenditures on these services undermine the claim that emerging carriers without an already-established brand name would find it difficult to compete. MCI WorldCom and AT&T promote their dial around services without taking advantage of any consumer perceptions of quality associated with their corporate brands. So far as the average consumer knows, these could be services of emerging carriers rather than services of one of the carriers with a "well-established brand name."⁵⁵ These advertising expenditures cannot be used to demonstrate the significance of having an already established brand name, or that emerging carriers without such a brand name are precluded from successfully promoting a mass market service. MCI WorldCom and AT&T have continued to invest in such promotions even though the dial around services themselves benefited no more from an established corporate brand name or image in the eyes of mass market consumers than would a new service from an emerging carrier.

⁵⁴ In 1999, AT&T also advertised bundled wireless services, at least some of which included wireline long distance service. Advertising of the dial around service constituted about 22 percent of AT&T's January through November 1999 advertising on both residential wireline long distance service and bundled wireless services.

⁵⁵ This characterization of the AT&T, MCI WorldCom, and Sprint brand names is from the Carlton and Sider Declaration, ¶17.

THE SIGNIFICANCE OF ILEC SUCCESS FOR BRANDING

64. Drs. Carlton and Sider argue that the success that ILECs such as SNET and GTE have had as suppliers of in-region long distance service confirms the importance of brand name and consumer recognition in winning larger shares of long distance business.⁵⁶ We would agree that, if and to the extent a supplier needs a pre-existing brand name or general reputation to win long distance customers, ILECs are likely to benefit. This does not mean, however, that one can infer the importance of brand name and reputation from ILEC success. Brand name and reputation are not the only possible reasons that ILECs could succeed in attracting large numbers of long distance customers. After all, ILECs also have advantages that reduce their costs of marketing and acquiring long distance customers because they already have regular contacts with these customers. ILECs offering in-region service also have offered customers the option of a single source of supply for both local and long distance at a time when, as a practical matter, other suppliers of long distance have found it difficult to offer the local service component that would allow them to market a comparable bundle. In these circumstances, a consumer preference for a single supplier would be another reason for ILEC success in selling in-region long distance service. More generally, the success of emerging carriers and the information presented above on the extent to which consumers are willing to use services of emerging carriers, or other services not bearing the AT&T, MCI WorldCom, or Sprint brand name, cast serious doubt on the crucial importance of a pre-existing brand name.

⁵⁶ Carlton and Sider Declaration, ¶¶20-21.

D. Econometric Analysis of Demand

65. In his Declaration, Professor Hausman describes in general terms the econometric model he has used to estimate the price elasticities of demand for residential long distance service and, in particular, the own price and cross price elasticities of demand for AT&T, MCI WorldCom, Sprint, and a group of “other” carriers. He also reports the results of a simulation of the price effects of the merger of MCI WorldCom and Sprint using a Bertrand price competition model that employs these estimated demand elasticities. Professor Hausman concludes that his econometric analysis demonstrates that MCI WorldCom and Sprint are each other’s closest competitors and that their merger will result in significant price increases.⁵⁷

66. It is difficult to evaluate the econometric analysis of Professor Hausman fully or in detail since he provides relatively few details about the data and models that he used or, indeed, the results that he obtained. Nonetheless, a number of problems with the methodology adopted and conclusions reached by Professor Hausman can be identified from the information he does provide. Given these problems, and the absence of additional information to allow the validity of Professor Hausman’s results to be tested, his results should not be relied upon by the Commission to draw conclusions either about residential consumers’ patterns of demand for service from various carriers or about the likely price effects of the merger. Producing reliable econometric estimates of the demand for the long distance services of various carriers is a difficult task at best. The information provided by Professor Hausman does not show that his analysis has met this challenge.

⁵⁷ Hausman Declaration, ¶¶23-24.

67. We have organized our discussion of Professor Hausman's analysis into four areas: modeling problems, data problems, statistical problems, and problems with interpretation and conclusions.

MODELING PROBLEMS

68. The basic framework of Professor Hausman's model is that consumers behave sequentially, first choosing which vendor to use for their long distance service and, second, determining how many minutes of long distance calling to make with that vendor. The first stage, discrete choice among the vendors, is estimated as a multinomial probit choice model.⁵⁸ The second stage is modeled as a continuous choice using an instrumental variables estimation technique to account for potential sample selectivity arising from the first stage choice.

69. According to Professor Hausman's description, his discrete choice model assumes that consumers choose from among an array of carriers that differ in their prices and other attributes; in each period each consumer selects the option that gives him the most utility, based on each carrier's prices in that period and other attributes. The second stage model then assumes that consumers choose the number of minutes of calling based on the prices of the chosen carrier and their own demographic characteristics. Although this may be a reasonable model of consumer behavior in other circumstances, it misses important features of consumer choice behavior for residential long distance service.

⁵⁸ Only results based on the multinomial probit choice model are reported. Professor Hausman states that he also explored use of multinomial logit and nested logit models, and that these models produced somewhat lower estimates of post-merger price changes, but he does not report those results. See Hausman Declaration, "Econometric Model and Calculation of Post-Merger Price Changes" (hereafter "Hausman

70. Consumers do not actively observe prices and make *de novo* choice of their long distance carrier each month in the same way, for example, that they confront shelf prices and choose the brand of orange juice they buy each time they go to the grocery store. The carrier that most residential customers use for most of their long distance calling is determined by their PIC choice. Consumers do reconsider and change the carrier they use—the data we presented above document that there is a substantial amount of switching among carriers—but this does not mean that each month each consumer reevaluates his PIC choice. Instead, consumers appear to reevaluate this choice with varying frequency and at varying intervals, perhaps because targeted marketing of calling plans conveys information on pricing over time and because consumers' search activities are sufficiently costly that they only undertake them sporadically.

71. A critical consequence is the implication that consumers will react to new prices set by a carrier over a number of months rather than nearly instantaneously, as Professor Hausman's static model appears to assume. One would expect an estimate of the responsiveness of demand to price based on such a static model to understate the true responsiveness of demand to price. Assume, for example, that one carrier lowers price while all others leave their prices unchanged and that some consumers shift to that carrier in the first month, more react to the price and shift in the second month, and so forth over a period of, say, six months. The true consumer response to the price change is the cumulative response over six months. A static model, however, looks at the response in each month and treats these responses as six different observations of how consumers react to the lower price. The relatively small response in the first months is averaged with the

Appendix”), p. 2 and fn. 11, p. 6. (This Appendix is not paginated; citations are based on sequential numbering of its pages.)

larger responses in later months, resulting in an understatement of the true *cumulative* response to the change in price. This results in an understatement of the true elasticity of demand.

DATA PROBLEMS

72. Determining consumers' responses to prices is the central objective of Professor Hausman's demand estimation. Accurate measurement of the prices to which consumers respond is critical to such an effort. The information he provides, however, is insufficient to demonstrate that Professor Hausman has overcome problems with the data employed for this purpose and that he has constructed accurate measures of price.

73. First, Professor Hausman does not mention using any information on any "fixed" monthly recurring charges in the discrete choice component of his model. The only carrier-specific factors identified by Professor Hausman are time-of-day prices. Monthly recurring charges certainly affect the cost to households of using different carriers and the utility they would receive from different choices, and the variability of such charges among carriers would be one of the sources of "price" variability to which consumer choice should respond. Failure to take fixed monthly charges into account could bias the estimated responsiveness of demand to price. In particular, the overall responsiveness of carrier choice to price could be understated by omitting an important component of price to which consumers respond. Alternatively, if, during the period covered by the data used by Professor Hausman, carriers were introducing fixed charges and simultaneously sharply reducing time-sensitive charges, using only time-sensitive charges as price variables would

overstate the effective reductions in total charges associated with observed shifts of vendor. Such a pattern would result in estimated price elasticities that were understated.⁵⁹

74. Second, even for those components of price he has included, Professor Hausman may not have measured accurately the prices to which consumers responded. He does not specify how the prices for various vendors—and in particular the prices of vendors other than those chosen by a customer—are computed from the underlying PNR bill detail data on individual calls and their cost. It seems likely that he derived measures of the prices available from a carrier to consumers *not* using that carrier from the prices paid by households that did use that carrier. However, the prices paid by households using a carrier are a mix of the prices paid by customers that recently switched to that carrier and the prices paid by long-time customers, and there are systematic differences between the two.⁶⁰ Use of the average would lead to a bias, as it would not accurately represent the prices to which switching consumers are responding.⁶¹

75. One reason why the prices paid by “switching” and “staying” consumers are likely to differ is the process of consumer choice described above: consumers do not all review current prices and make active carrier choices every month. Long distance prices have been falling steadily over time, but customers tend to receive price reductions, or at least

⁵⁹ There may be problems with the construction of the time-of-day price variables as well. Hausman reports that prices were determined for peak, off-peak/non-Sunday, and off-peak/Sunday periods, but he does not define the periods used to construct these measures (Hausman Appendix, fn. 3, p. 2). The time-of-day structures for plans offered by various carriers have changed over time and vary among the plans offered by different carriers. Without more information, it is impossible to determine how closely the constructed time-of-day measures match the time-of-day pricing structure of various plans offered to consumers.

⁶⁰ Paragren data confirm the existence of such pricing differences.

⁶¹ Other, more sophisticated methods for imputing missing prices, such as regression methods or “hot deck” methods, suffer from the same basic problem since they also would not distinguish prices paid by recently switched households and long-term customers.